ABSTRACT OF THE DISCLOSURE

Steel for mechanical construction, method of hot-shaping of a part from this steel, and part thus obtained.

The invention relates to a steel for mechanical construction, wherein its composition in percentages by weight is: $0.35\% \leq C \leq 2.5\%$; $0.10\% \leq Mn \leq 2.5\%$; $0.60\% \leq Si \leq 3.0\%$; traces $\leq Cr \leq 4.5\%$; traces $\leq Mo \leq 2.0\%$; traces $\leq Ni \leq 4.5\%$; traces $\leq V \leq 0.5\%$; traces $\leq Cu \leq 4\%$ with $Cu \leq Ni\% + 0.6\ Si\%$ if $Cu \geq 0.5\%$; traces $\leq Al \leq 0.060\%$; traces $\leq Ca \leq 0.050\%$; traces $\leq B \leq 0.01\%$; traces $\leq S \leq 0.200\%$; traces $\leq Te \leq 0.020\%$; traces $\leq Se \leq 0.040\%$; traces $\leq Pb \leq 0.070\%$; traces $\leq Nb \leq 0.050\%$; traces $\leq Ti \leq 0.050\%$; the remainder being iron and impurities resulting from the manufacture.

The invention also relates to a method of hot-shaping a steel part, wherein a billet of steel of the preceding composition is obtained, it is heated to a temperature between the solidus and the liquidus so as to obtain a liquid phase and a globular solid phase, shaping of the said billet is carried out by thixoforging so as to obtain the said part, and cooling of the said part is carried out. Finally, the invention relates to a steel part thus obtained.

Figure 1